

CLAIMS

[001] An electronic module comprising at least one circuit carrier (3) coated on both sides with an electroconductive material, wherein the circuit carrier (3) is fitted with a first group of electronic components (2) for forming a user interface and with a second group of electronic components (4) for forming a computing and control module, characterised in that the first group of electronic components (2) for forming the user interface is applied and connected on a first side (5) of the circuit carrier (3) and the second group of electronic components (4) for forming the computing and control module is applied and connected on a second side (7) of the circuit carrier (3) opposite to the first side (5).

[002] The electronic module according to claim 1, characterised in that the circuit carrier (3) is free from through-connection points, in particular STH through-connection points.

[003] The electronic module according to claim 1 or claim 2, characterised in that the circuit carrier (3) comprises at least one signal transmission device (6) for two-way transmission of control signals between the first group of electronic components (2) on the first side (5) of the circuit carrier (3) and the second group of electronic components (4) on the second side (7) of the circuit carrier (3) and/or for supplying the first side (5) with electrical power via the second side (7) or conversely.

1 [004] The electronic module according to claim 3,
2 characterised in that the signal transmission device (6)
3 comprises at least one plug-in element (8) which is
4 plugged at an edge region (11) of the circuit carrier
5 (3) via opposite plug-in regions (12) formed on the
6 first and the second side (5; 7) of the circuit carrier
7 (3) and conjugate with one another.

8
9 [005] The electronic module according to claim 3 or claim
10 4, characterised in that the signal transmission device
11 (6) comprises at least one conductor element (9), in
12 particular a cable jumper, which electrically connects a
13 first contact region (13) on the first side (5) of the
14 circuit carrier (3) to a second contact region (13') on
15 the second side (7) of the circuit carrier (3).

16
17 [006] The electronic module according to any one of
18 claims 3 to 5, characterised in that the signal
19 transmission device (6) comprises at least one through-
20 connection element (10) which runs through a through-
21 hole (15) in the circuit carrier (3) and electrically
22 connects a first contact region (14) on the first side
23 (5) of the circuit carrier (3) to a second contact
24 region (14') on the second side (7) of the circuit
25 carrier (3).

26
27 [007] The electronic module according to claim 6,
28 characterised in that the through-connection element
29 (10) is a plug-in element especially formed of sheet
30 metal, which comprises a plane contact surface (16) and
31 a pin region (17), which is spring-connected to the
32 contact surface (16) by means of a spring section (18),
33 wherein the contact surface (16) abuts flush against the
34 contact region (14, 14') of the circuit carrier (3), and

1 wherein the pin region (17) runs through the through
2 hole (15) when the plug-in element (10) is inserted in
3 the through hole (15) as a through-connection element
4 (10).
5

6 [008] The electronic module according to any one of the
7 preceding claims, characterised in that the first group
8 of electronic components (2) are components mounted on
9 an SMD region (19) of the first side (5) of the circuit
10 carrier (3) by means of SMD technology and the second
11 group of electronic components (4) are components
12 mounted on an SMD region (19') of the second side (7) of
13 the circuit carrier (3) by means of SMD technology and
14 also components mounted in a THD region (20') of the
15 second side (7) of the circuit carrier (3) by means of
16 THD technology, wherein the THD region (20') of the
17 second side (7) is different from the SMD region (19')
18 of the second side (7) and wherein the SMD region (19')
19 of the second side (7) is a region corresponding to and
20 opposite to the SMD region (19) of the first side (3).
21

22 [009] The electronic module according to any one of
23 claims 1 to 7, characterised in that the first group of
24 electronic components (2) are components mounted on an
25 SMD region (19) of the first side (5) of the circuit
26 carrier (3) by means of SMD technology as well as
27 components mounted on a THD region (20) of the first
28 side (5) of the circuit carrier (3) by means of THD
29 technology, and the second group of electronic
30 components (4) are components mounted on an SMD region
31 (19') of the second side (7) of the circuit carrier (3)
32 by means of SMD technology, wherein the THD region (20)
33 of the first side (5) is different from the SMD region
34 (19) of the first side (5) and wherein the SMD region

1 (19') of the second side (7) is a region corresponding
2 to and opposite to the SMD region (19) of the first side
3 (3).

4
5 [010] A method for producing an electronic module
6 according to any one of claims 1 to 9, which comprises
7 the following process steps: loading the first side (5)
8 of the circuit carrier (3) with a first group of
9 electronic components (2) for forming a user interface
10 of the module; loading the second side (7) of the
11 circuit carrier with a second group of electronic
12 components (4) for forming a computing and control
13 module; and c) setting up signal transmission and/or
14 power supply connections between the first side (5) and
15 the second side (7).

16
17 [011] The method according to claim 10, characterised in
18 that the process step c) further comprises the following
19 process steps: forming plug-in regions (12) which extend
20 on an edge region (11) in an opposed and mutually
21 conjugate manner on the first side (5) and the second
22 side (7) of the circuit carrier (3); and plugging the
23 plug-in element (8) onto the oppositely constructed and
24 mutually conjugate plug-in regions (12).

25
26 [012] The method according to claim 10 or claim 11,
27 characterised in that the process step c) further
28 comprises the following process steps: forming at least
29 one first contact region (13) on the first side (5) of
30 the circuit carrier (3) and at least one second contact
31 region (13') on the second side (7) of the circuit
32 carrier (3); and connecting the at least one first
33 contact region (13) to the at least one second contact
34 region (13') by means of a conductor element (9).

1
2
3
4
5
6
7
8
9
10
11
12
13
14

[013] The method according to any one of claims 10 to 12,
characterised in that the process step c) further
comprises the following process steps: forming at least
one through hole (15) in the circuit carrier (3);
forming at least one contact region (14) on the first
side (5) of the circuit carrier (3) and at least one
second contact region (14') on the second side (7) of
the circuit carrier (3); and inserting a through-
connection element (10) into the at least one through
hole (15) to electrically connect the at least one first
contact region (14) to the at least one second contact
region (14').